

BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

In the Matter of
AMENDMENT OF PARTS 2 AND 73 OF THE COM-
MISSION'S RULES TO PERMIT THE USE OF THE }
FREQUENCY 108.0 Mc/s BY VOR TEST FACIL- }
ITIES } Docket No. 15578

REPORT AND ORDER

(March 31, 1965)

BY THE COMMISSION (COMMISSIONER LOEVINGER ABSENT) :

1. The Commission, on July 22, 1964, adopted a Notice of Proposed Rule Making in the above captioned matter (FCC 64-682) which was published in the Federal Register on July 29, 1964 (29 FR 10524). The time for filing comments and reply comments was, pursuant to a request by Aeronautical Radio, Inc., extended by Commission Order released on September 10, 1964. That time has now expired.

2. The Notice of Proposed Rule Making was issued in response to a request by the Federal Aviation Agency (FAA) and would permit the assignment of 108.0 Mc/s for Government and non-Government operation of very high frequency Omni-Range (VOR) test facilities at airports located throughout the United States. The frequency is presently unassigned since it is a band edge between the FM broadcasting (88-108 Mc/s) and the aeronautical radionavigation (108-117.975 Mc/s) bands. The test facilities are required for checking the calibration of VOR receivers. It was proposed to limit the power so that signal strength would not exceed 100 microvolts per meter at a radius of five miles from the transmitter.

3. Comments in response to the proposal were filed by Hawaiian Telephone Company (Hawaiian); Jefferson Standard Broadcasting Company (Jefferson Standard); Mid-States Broadcasting Corporation (Mid-States); National Aeronautical Corporation (National); Ken-Sell, Incorporated (Ken-Sell); and jointly, by Aeronautical Radio, Incorporated and Air Transport Association of America (ARINC/ATA). In general, the comments from aviation interests advocated the assignment whereas broadcasting interests objected to the proposal, particularly in the proximity of communities where FM Channel 300 (107.9 Mc/s) is assigned. These comments will be discussed in succeeding paragraphs.

4. Hawaiian, which utilizes the band 98-108 Mc/s for common carrier fixed operations pursuant to footnote NG28 to the Table of Frequency Allocations, is of the opinion that the radionavigation band 108-117.975 Mc/s is not as saturated in Hawaii as it is in many

areas of the conterminous United States. Therefore, Hawaiian recommended that FAA show that the radionavigation band was saturated and that other frequencies could not be used by VOR test facilities in Hawaii.

5. Discussions with FAA representatives indicate that the need for use of the frequency 108.0 Mc/s is not critical, either in the Hawaiian Islands or in Alaska, and it is believed that assignments to meet VOR test facility requirements in those states can be made from within the 108-117.975 Mc/s band. Accordingly, the assignment of 108.0 Mc/s to VOR test facilities located in Alaska or Hawaii has been removed from further consideration in this proceeding.

6. Endorsement of the proposal was received from National and from ARINC/ATA. The latter also wished to clarify an apparent ambiguity in the Notice by pointing out a need for two types of test facilities by the aviation industry, namely: (1) operational test facility (OTF); and (2) maintenance test facility (MTF). The OTF requires a transmitter of low output power which radiates a signal characteristic of the system to be checked and which is located at an airport to provide appropriate coverage. The purpose is to permit the pilot to check the system prior to take-off. The MTF, on the other hand, is a test generator which radiates signals characteristic of the system to be checked, is self contained and may be moved from aircraft to aircraft, operating in the vicinity of the antenna of the system to be tested. The purpose of the MTF is to permit maintenance testing by radio servicing personnel aboard the aircraft. Thus, multiple MTF facilities may be required.

7. The VOR Operational Test (VOT) facility is, therefore, a sub-category of an OTF, and is intended for the calibration only of VOR radionavigation systems aboard the aircraft prior to take-off. Where a VOT is not installed, it is conceivable that a multiplicity of MTF stations may be required to perform the same functions that a VOT would normally be expected to perform. In view of the representations made by FAA in the initial correspondence and by ARINC/ATA in their comments, the Commission is of the opinion that the frequency 108.0 Mc/s is required for VOR system testing and may be needed at either an OTF or an MTF depending on the nature of the installation.

8. Objecting to the proposal were Jefferson Standard, Mid-States and Ken-Sell. Each is a licensee of an FM station operating on Channel 300 (107.9 Mc/s). Their objections were directed essentially at the possibility of blanket assignment of the frequency 108.0 Mc/s at various airports throughout the country, although Mid-States stated that each operation could be considered on a case-by-case basis. Jefferson Standard and Ken-Sell each submitted engineering statements purporting to show that interference could be caused to the reception of FM broadcasting stations operating on Channel 300—a fact which

the Commission recognized in the original proposal. Consequently, Jefferson Standard recommended that restrictions concerning the assignment of 108.0 Mc/s for VOR test facilities be expanded to include: (a) incorporation into the Rules of a power limitation to preclude a signal strength greater than 100 uv/m at a radius of 5 miles from the transmitter; (b) specify the receiving antenna height at which the restriction should apply; and (c) preclude the assignment of 108.0 Mc/s at a station closer than 65 miles from a Class C station or allocation on Channel 300. Ken-Sell recommends that: (a) no VOR test facility be assigned within 60 miles of any community in which Channel 300 is allocated; and (b) specific ratios of desired-to-undesired signal strengths should be established to provide protection to the 50 uv/m contour of FM stations.

9. As a practical matter, the receivers to be used in VOR calibration have a sensitivity of approximately 5 uv. As pointed out by Jefferson Standard, FM stations render substantial service "often out to 50 uv/m contour". A signal strength of sufficient magnitude to provide that degree of service undoubtedly would, even considering, the sideband rejection characteristics of the receivers, preclude accurate operation of the VOR calibration systems, thus making installation of a VOT station operating on 108.0 Mc/s valueless.

10. It must be pointed out, however, that imposition of any or all of the conditions advocated by Jefferson Standard and/or Ken-Sell would not necessarily preclude interference to FM reception. Recognizing the interference potential, the Commission proposed a new U.S. footnote to the Table of Frequency Allocations, Section 2.106 of the Rules, which included the conditional phrase that, "The frequency 108.0 Mc/s may be authorized for use by VOR test facilities * * * subject to the condition that no interference is caused to the reception of FM broadcasting stations * * * operating in the band 88-108 Mc/s". The proposed US footnote continued, " * * * In the event that such interference does occur, the licensee or other agency authorized to operate the facility shall discontinue operation on 108 Mc/s and shall not resume operation until the interference has been eliminated or the complaint otherwise satisfied". Since reception of FM broadcasting stations appears to be protected adequately by the new footnote, imposition of the conditions advocated by Jefferson Standard and Ken-Sell does not appear to be necessary. Accordingly, their recommendations are not being adopted.

11. In accordance with the considerations set forth above, and, pursuant to authority contained in Sections 4(i) and 303 of the Communications Act of 1934, as amended, *It is ordered*, That effective May 10, 1965, Section 2.106 of Part 2 and Section 73.201 of Part 73 *Are amended* in the manner set forth in the attached Appendix; and the proceedings in Docket No. 15578 are hereby terminated.

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APPENDIX

I. Part 2 is amended as follows:

In § 2.106, the Table of Frequency Allocations is amended by the addition of footnote designation (US93) in column 5 for the frequency bands 88-108 and 108-117.975 Mc/s, and new footnote US93 is added, to read as follows:

§ 2.106 Table of Frequency Allocations

	United States						
	Band Mc/s 5	Allocation 6					
*	*	*	*	*	*	*	*
88-108 (US23) (US93)				NG.			
108-117.975 (US93)				G, NG.			
*	*	*	*	*	*	*	*

US93 In the conterminous United States, the frequency 108.0 Mc/s may be authorized for use by VOR test facilities, the operation of which is not essential for the safety of life or property, subject to the condition that no interference is caused to the reception of FM broadcasting stations operating in the band 88-108 Mc/s. In the event that such interference does occur, the licensee or other agency authorized to operate the facility shall discontinue operation on 108 Mc/s and shall not resume operation until the interference has been eliminated or the complaint otherwise satisfied. VOR test facilities operating on 108 Mc/s will not be protected against interference caused by FM broadcasting stations operating in the band 88-108 Mc/s nor shall the authorization of a VOR test facility on 108 Mc/s preclude the Commission from authorizing additional FM broadcasting stations.

II. Part 73 is amended as follows:

Section 73.201 is amended by the addition of the following note:

§ 73.201 Numerical designation of FM broadcast channels

* * * * *

Note: The frequency 108.0 Mc/s may be assigned to VOR test stations subject to the condition that interference is not caused to the reception of FM broadcasting stations, present or future.

39 F.C.C.